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(FILE 'HOME' ENTERED AT 13:39:17 ON 11 APR 2008)

FILE 'HCAPLUS, INSPEC, JAPIO, USPATFULL, USPATOLD, USPAT2' ENTERED AT
13:39:38 ON 11 APR 2008

L1 663 S (GAN OR GALLIUM(W)NITRIDE) (8A) (FLUX)
L2 3711 S (GAN OR GALLIUM(W)NITRIDE) (10A) (SINGLE(W)CRYSTAL# OR MONO(W)C
L3 748 S (FLUX?) (8A) (NA(8A)METAL? OR SODIUM(8A)METAL?)
L4 184810 S (NITROGEN(8A)ATMOSPHERE#)
L5 99533 S (TOTAL?(6A)PRESSURE#)

=> s 12 and 13 and 14 and 15

L6 12 L2 AND L3 AND L4 AND L5

=> d 16 1-12 abs,bib

L6 ANSWER 1 OF 12 USPATFULL on STN

AB A method of growing a group III nitride crystal grows a group III
nitride crystal from a solution in which an alkaline metal, a group III
metal and nitrogen are dissolved, and includes, in the solution, a
material which increases solubility of the nitrogen into the solution.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2007:305850 USPATFULL

TI Method of growing group III nitride crystal, group III nitride crystal
grown thereby, group III nitride crystal growing apparatus and
semiconductor device

IN Iwata, Hirokazu, Miyagi, JAPAN
Sarayama, Seiji, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Aoki, Masato, Miyagi, JAPAN

PI US 2007:266928 A1 20071122

AI US 2007-878125 A1 20070720 (11)

RLI Division of Ser. No. US 2004-765502, filed on 28 Jan 2004, GRANTED, Pat.
No. US 7261775

PRAI JP 2003-19716 20030129
JP 2003-71302 20030317
JP 2003-81836 20030325
JP 2004-11536 20040120
JP 2004-12906 20040121
JP 2004-13562 20040121

DT Utility

FS APPLICATION

LREP DICKSTEIN SHAPIRO LLP, 1825 EYE STREET NW, Washington, DC, 20006-5403,
US

CLMN Number of Claims: 19

ECL Exemplary Claim: 1-28

DRWN 19 Drawing Page(s)

LN.CNT 2529

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 2 OF 12 USPATFULL on STN

AB It is provided a method of growing gallium nitride
single crystal of good quality with a high
productivity, in the growth of gallium nitride
single crystal by Na-flux method. Gallium
nitride single crystal is grown using
flux 8 containing at least sodium metal.
Gallium nitride single crystal is

grown in atmosphere composed of gases mixture "B" containing nitrogen gas at a pressure of 300 atms or higher and 2000 atms or lower. Preferably, the nitrogen partial pressure in the atmosphere is 100 atms or higher and 2000 atms or lower. Preferably, the growth temperature is 1000° C. or higher and 1500° C. or lower.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2007:240075 USPATFULL
 TI Gallium Nitride Single Crystal
 Growing Method and Gallium Nitride Single
 Crystal
 IN Iwai, Makoto, Kasugai-city, JAPAN
 Imai, Katsuhiko, Nagoya-city, JAPAN
 Imaeda, Minoru, Nagoya-city, JAPAN
 PA NGK Insulators, Ltd., Nagoya-city, JAPAN, 467-8530 (non-U.S.
 corporation)
 PI US 2007/209575 A1 20070913
 AI US 2005-594846 A1 20050330 (10)
 WO 2005-JP6692 20050330
 20061108 PCT 3/1 date
 PRAI JP 2004-103093 20040331
 DT Utility
 FS APPLICATION
 LREP STEPTOE & JOHNSON LLP, 1330 CONNECTICUT AVENUE, N.W., WASHINGTON, DC,
 20036, US
 CLMN Number of Claims: 7
 ECL Exemplary Claim: 1
 DRWN 1 Drawing Page(s)
 LN,CNT 278
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 3 OF 12 USPATFULL on SIN

AB A group-III nitride crystal growth method comprises the steps of: a)
 preparing a mixed molten liquid of an alkaline material and a substance
 at least containing a group-III metal; b) causing growth of a group-III
 nitride crystal from the mixed molten liquid prepared in the step a) and
 a substance at least containing nitrogen; and c) creating a state in
 which nitrogen can be introduced into the molten liquid prepared by the
 step a).

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2006:155223 USPATFULL
 TI Crystal growth method, crystal growth apparatus, group-III nitride
 crystal and group-III nitride semiconductor device
 IN Sarayama, Seiji, Miyagi, JAPAN
 Yamane, Hisanori, Miyagi, JAPAN
 Shimada, Masahiko, Miyagi, JAPAN
 Kumano, Masafumi, Kanagawa, JAPAN
 Iwata, Hirokazu, Miyagi, JAPAN
 Araki, Takashi, Miyagi, JAPAN
 PI US 2006130739 A1 20060622
 AI US 2005-302128 A1 20051214 (11)
 RLI Division of Ser. No. US 2002-134895, filed on 30 Apr 2002, GRANTED, Pat.
 No. US 7001457
 PRAI JP 2001-134171 20010501
 JP 2001-147703 20010517
 JP 2001-152977 20010522
 JP 2001-195954 20010628
 JP 2001-355720 20011121
 JP 2001-358808 20011126

DT Utility
FS APPLICATION
LREP DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP, 2101 L Street, NW, Washington,
DC, 20037, US
CLMN Number of Claims: 11
ECL Exemplary Claim: 1
DRWN 28 Drawing Page(s)
LN.CNT 3036
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 4 OF 12 USPATFULL on SIN

AB A method of growing a group III nitride crystal grows a group III nitride crystal from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved, and includes, in the solution, a material which increases solubility of the nitrogen into the solution.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2004:289438 USPATFULL
TI Method of growing group III nitride crystal, group III nitride crystal grown thereby, group III nitride crystal growing apparatus and semiconductor device
IN Iwata, Hirokazu, Miyagi, JAPAN
Sarayama, Seiji, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Aoki, Masato, Miyagi, JAPAN
PI US 2004226503 A1 20041118
US 7261775 B2 20070828
AI US 2004-765502 A1 20040128 (10)
PRAI JP 2003-19716 20030129
JP 2003-71302 20030317
JP 2003-81836 20030325
JP 2004-11536 20040120
JP 2004-12906 20040121
JP 2004-13562 20040121

DT Utility
FS APPLICATION
LREP DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP, 2101 L STREET NW, WASHINGTON,
DC, 20037-1526
CLMN Number of Claims: 49
ECL Exemplary Claim: 1
DRWN 19 Drawing Page(s)
LN.CNT 2724
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 5 OF 12 USPATFULL on SIN

AB A method of making a bulk crystal substrate of a GaN single crystal includes the steps of forming a molten flux of an alkali metal in a reaction vessel and causing a growth of a GaN single crystal from the molten flux, wherein the growth is continued while replenishing a compound containing N from a source outside the reaction vessel.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2004:42459 USPATFULL
TI Production of a GaN bulk crystal substrate and a semiconductor device formed on a GaN bulk crystal substrate
IN Sarayama, Seiji, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Iwata, Hirokazu, Miyagi, JAPAN

PI US 2004031437 A1 20040219
 US 7250640 B2 20070731
 AI US 2003-601301 A1 20030613 (10)
 RLI Division of Ser. No. US 2000-590063, filed on 8 Jun 2000, GRANTED, Pat.
 No. US 6592663
 PRAI JP 1999-162411 19990609
 JP 1999-237195 19990824
 JP 1999-277045 19990929
 JP 1999-295039 19991018
 DT Utility
 FS APPLICATION
 LREP RICHARD F. JAWORSKI, Cooper & Dunham LLP, 1185 Avenue of the Americas,
 New York, NY, 10036
 CLMN Number of Claims: 77
 ECL Exemplary Claim: 1
 DRWN 21 Drawing Page(s)
 LN.CNT 1085
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 6 OF 12 USPATFULL on SIN

AB A group-III nitride crystal growth method, comprising the steps of: a)
 preparing a mixed molten liquid of an alkaline metal and a material at
 least comprising a group-III metal; b) growing a group-III nitride
 crystal of the group-III metal and nitrogen from the mixed molten liquid
 and a material at least comprising nitrogen; and c) setting a
 predetermined crystal growth condition according to a zone defined by a
 pressure and a temperature in said step b).

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2003:235982 USPATFULL
 TI Crystal growth method, crystal growth apparatus, group-III nitride
 crystal and group-III nitride semiconductor device
 IN Sarayama, Seiji, Miyagi, JAPAN
 Iwata, Hirokazu, Miyagi, JAPAN
 Shimada, Masahiko, Miyagi, JAPAN
 Yamane, Hisanori, Miyagi, JAPAN
 Aoki, Masato, Miyagi, JAPAN
 PI US 2003164138 A1 20030904
 US 6949140 B2 20050927
 AI US 2002-308149 A1 20021203 (10)
 PRAI JP 2001-371147 20011205
 JP 2002-3312 20020110
 JP 2002-19986 20020129
 JP 2002-119453 20020422
 DT Utility
 FS APPLICATION
 LREP DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP, 2101 L STREET NW, WASHINGTON,
 DC, 20037-1526
 CLMN Number of Claims: 69
 ECL Exemplary Claim: 1
 DRWN 20 Drawing Page(s)
 LN.CNT 2757
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 7 OF 12 USPATFULL on SIN

AB A method of making a bulk crystal substrate of a GaN
 single crystal includes the steps of forming a molten
 flux of an alkali metal in a reaction vessel and causing a growth of a
 GaN single crystal from the molten flux,
 wherein the growth is continued while replenishing a compound containing
 N from a source outside the reaction vessel.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2003:190451 USPATFULL
TI Production of a GaN bulk crystal substrate and a semiconductor device
formed on a GaN bulk crystal substrate
IN Sarayama, Seiji, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Iwata, Hirokazu, Miyagi, JAPAN
PA Ricoh Company Ltd., Tokyo, JAPAN (non-U.S. corporation)
PI US 6592663 B1 20030715
AI US 2000-590063 20000608 (9)
PRAI JP 1999-162411 19990609
JP 1999-237195 19990824
JP 1999-277045 19990929
JP 1999-295039 19991018
DT Utility
FS GRANTED
EXNAM Primary Examiner: Kunemund, Robert
LREP Cooper and Dunham, LLP.
CLMN Number of Claims: 51
ECL Exemplary Claim: 1
DRWN 23 Drawing Figure(s); 21 Drawing Page(s)
LN.CNT 997

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 8 OF 12 USPATFULL on STN
AB A group-III nitride crystal growth method comprises the steps of: a)
preparing a mixed molten liquid of an alkaline material and a substance
at least containing a group-III metal; b) causing growth of a group-III
nitride crystal from the mixed molten liquid prepared in the step a) and
a substance at least containing nitrogen; and c) creating a state in
which nitrogen can be introduced into the molten liquid prepared by the
step a).

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2002:312884 USPATFULL
TI Crystal growth method, crystal growth apparatus, group-III nitride
crystal and group-III nitride semiconductor device
IN Sarayama, Seiji, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Kumano, Masafumi, Kanagawa, JAPAN
Iwata, Hirokazu, Miyagi, JAPAN
Araki, Takashi, Miyagi, JAPAN
PI US 2002175338 A1 20021128
US 7001457 B2 20060221
AI US 2002-134895 A1 20020430 (10)
PRAI JP 2001-134171 20010501
JP 2001-147703 20010517
JP 2001-152977 20010522
JP 2001-195954 20010628
JP 2001-355720 20011121
JP 2001-358808 20011126
DT Utility
FS APPLICATION
LREP DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP, 2101 L STREET NW, WASHINGTON,
DC, 20037-1526
CLMN Number of Claims: 82
ECL Exemplary Claim: 1
DRWN 28 Drawing Page(s)

LN.CNT 3408
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 9 OF 12 USPAT2 on STN

AB A method of growing a group III nitride crystal grows a group III nitride crystal from a solution in which an alkaline metal, a group III metal and nitrogen are dissolved, and includes, in the solution, a material which increases solubility of the nitrogen into the solution.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2004:289438 USPAT2
TI Methods of growing a group III nitride crystal
IN Iwata, Hirokazu, Miyagi, JAPAN
Sarayama, Seiji, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Aoki, Masato, Miyagi, JAPAN
PA Ricoh Company, Ltd., Tokyo, JAPAN (non-U.S. corporation)
PI US 7261775 B2 20070828
AI US 2004-765502 20040128 (10)
PRAI JP 2003-19716 20030129
JP 2003-71302 20030317
JP 2003-81836 20030325
JP 2004-11536 20040120
JP 2004-12906 20040121
JP 2004-13562 20040121
DT Utility
FS GRANTED
EXNAM Primary Examiner: Kunemund, Robert
LREP Dickstein Shapiro LLP
CLMN Number of Claims: 21
ECL Exemplary Claim: 1
DRWN 37 Drawing Figure(s); 19 Drawing Page(s)
LN.CNT 2536
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 10 OF 12 USPAT2 on STN

AB A method of making a bulk crystal substrate of a GaN single crystal includes the steps of forming a molten flux of an alkali metal in a reaction vessel and causing a growth of a GaN single crystal from the molten flux, wherein the growth is continued while replenishing a compound containing N from a source outside the reaction vessel.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2004:42459 USPAT2
TI Production of a GaN bulk crystal substrate and a semiconductor device formed on a GaN bulk crystal substrate
IN Sarayama, Seiji, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Iwata, Hirokazu, Miyagi, JAPAN
PA Ricoh Company, Ltd., Tokyo, JAPAN (non-U.S. corporation)
PI US 7250640 B2 20070731
AI US 2003-601301 20030613 (10)
RLI Division of Ser. No. US 2000-590063, filed on 8 Jun 2000, Pat. No. US 6592663
PRAI JP 1999-162411 19990609
JP 1999-237195 19990824
JP 1999-277045 19990929
JP 1999-295039 19991018

DT Utility
FS GRANTED
EXNAM Primary Examiner: Ho, Tu-Tu
LREP Cooper & Dunham LLP
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 23 Drawing Figure(s); 21 Drawing Page(s)
LN.CNT 861
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 11 OF 12 USPAT2 ON STN

AB A group-III nitride crystal growth method, comprising the steps of: a) preparing a mixed molten liquid of an alkaline metal and a material at least comprising a group-III metal; b) growing a group-III nitride crystal of the group-III metal and nitrogen from the mixed molten liquid and a material at least comprising nitrogen; and c) setting a predetermined crystal growth condition according to a zone defined by a pressure and a temperature in said step b).

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2003:235982 USPAT2
TI Crystal growth method, crystal growth apparatus, group-III nitride crystal and group-III nitride semiconductor device
IN Sarayama, Seiji, Miyagi, JAPAN
Iwata, Hirokazu, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Aoki, Masato, Miyagi, JAPAN
PA Ricoh Company, Ltd., Tokyo, JAPAN (non-U.S. corporation)
PI US 6949140 B2 20050927
AI US 2002-308149 20021203 (10)
PRAI JP 2001-371147 20011205
JP 2002-3312 20020110
JP 2002-19986 20020129
JP 2002-119453 20020422

DT Utility
FS GRANTED
EXNAM Primary Examiner: Kunemund, Robert
LREP Dickstein Shapiro Morin & Oshinsky LLP
CLMN Number of Claims: 69
ECL Exemplary Claim: 1
DRWN 33 Drawing Figure(s); 20 Drawing Page(s)
LN.CNT 2718
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L6 ANSWER 12 OF 12 USPAT2 ON STN

AB A group-III nitride crystal growth method comprises the steps of: a) preparing a mixed molten liquid of an alkaline material and a substance at least containing a group-III metal; b) causing growth of a group-III nitride crystal from the mixed molten liquid prepared in the step a) and a substance at least containing nitrogen; and c) creating a state in which nitrogen can be introduced into the molten liquid prepared by the step a).

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2002:312884 USPAT2
TI Crystal growth method, crystal growth apparatus, group-III nitride crystal and group-III nitride semiconductor device
IN Sarayama, Seiji, Miyagi, JAPAN
Yamane, Hisanori, Miyagi, JAPAN
Shimada, Masahiko, Miyagi, JAPAN

Kumano, Masafumi, Kanagawa, JAPAN
 Iwata, Hirokazu, Miyagi, JAPAN
 Araki, Takashi, Miyagi, JAPAN
 PA Ricoh Company, Ltd., Tokyo, JAPAN (non-U.S. corporation)
 PI US 7001457 B2 20060221
 AI US 2002-134895 20020430 (10)
 PRAI JP 2001-134171 20010501
 JP 2001-147703 20010517
 JP 2001-152977 20010522
 JP 2001-195954 20010628
 JP 2001-355720 20011121
 JP 2001-358808 20011126
 DT Utility
 FS GRANTED
 EXNAM Primary Examiner: Mills, Gregory; Assistant Examiner: Anderson, Matthew
 LREP Dickstein Shapiro Morin & Oshinsky LLP
 CLMN Number of Claims: 20
 ECL Exemplary Claim: 1
 DRWN 61 Drawing Figure(s); 28 Drawing Page(s)
 LN.CNT 3174
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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